



UNITED STATES PATENT AND TRADEMARK OFFICE

NW

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,230	08/30/2001	John Whitman	4294.1US (98-1208.1)	2488

24247 7590 12/31/2003

TRASK BRITT
P.O. BOX 2550
SALT LAKE CITY, UT 84110

EXAMINER

DICKEY, THOMAS L

ART UNIT	PAPER NUMBER
----------	--------------

2826

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/944,230

Applicant(s)

WHITMAN ET AL.

Examiner

Thomas L Dickey

Art Unit

2826

NW

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 5-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,11-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 13 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 2826

DETAILED ACTION

1. The amendment filed on 11/03/03 has been entered.

Drawings

The proposed substitute sheet of drawings filed on 11/03/2003 has been approved.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

A. Claims 15-20 stand rejected under 35 U.S.C. 102(e) as being anticipated by YATES et al. (6,358,793).

Yates et al. discloses a semiconductor device structure with a substantially planar surface, comprising a substrate 5-10-15 including at least one recess (no #; it is the recess that is partially filled by part 90) formed therein, and a material layer 90 disposed at least partially over the substrate 5-10-15 and at least one intermediate layer 20, comprising at least one of a mask material, an insulative material, and a conductive mate-

Art Unit: 2826

rial, namely, conductive HSG silicon, between the substrate 5-10-15 and the material layer 90, so that the material layer 90 and the at least one intermediate layer 20 each at least partially fill the at least one recess, the material layer 90 having a substantially planar surface substantially free of abrasive planarization-induced defects, where at least one region of the at least one intermediate layer 20 and at least one region of the substrate 5-10-15 is exposed through the material layer 90, and the material layer 90 has a thickness that is less than a depth of the at least one recess. Note figures 11, 12, 7, and column 10 lines 1-31 of Yates et al.

B. Claims 1,3, and 11-13 stand rejected under 35 U.S.C. 102(e) as being anticipated by KIKUCHI ET AL. (6,278,153).

Kikuchi et al. discloses a semiconductor device structure with a substrate 21-22-23-24-25-26 including at least one recess 23A formed therein, and a material layer 20 disposed over the substrate 21-22-23-24-25-26 and substantially filling the at least one recess 23A, the material layer 20 having a substantially planar surface free of abrasive planarization-induced defects, wherein the substrate 21-22-23-24-25-26 comprises a stacked capacitor structure 22-23-24-25-26 and the at least one recess 23A comprises at least one container 27 recessed in an insulator layer 23 of the stacked capacitor structure 22-23-24-25-26. Note figures 6B, 6F and column 19 lines 35-67 and column 20 lines 13-27 of Kikuchi et al.

With special regard to claims 3,12, and 13, Kikuchi et al. discloses that the material layer 20 comprises a mask material (note column 20 lines 14-17), the mask material

Art Unit: 2826

substantially filling the at least one container 27, wherein the mask material has a thickness of (note the thickness disclosed by figure 6F) less than a depth of the at least one container 27.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

C. Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over KIKUCHI et al. (6,278,153) in view of DENNISON et al. (5,663,090).

Kikuchi et al. discloses a semiconductor device structure with all the limitations of claim 4 except that the substrate include at least one conductively doped region continuous with a surface of the semiconductor substrate and adjacent the at least one recess. Note figure 6F of Kikuchi et al.

However, Dennison et al. discloses a semiconductor device structure with substrate 40 including at least one conductively doped region 41 that is adjacent to a recess (the recess being filled with lower electrode 43 of a stacked capacitor structure. Note figure 4b of Dennison et al. Therefore, it would have been obvious to a person having skill in the art to replace the substrate of Kikuchi et al.'s semiconductor device structure with the substrate including at least one conductively doped region that is adjacent a recess

Art Unit: 2826

containing a stacked capacitor structure, such as taught by Dennison et al. in order to utilize the semiconductor device structure of Kikuchi et al. alongside a MOSFET such as taught by Dennison et al. to thus utilize the semiconductor device structure of Kikuchi et al. as the capacitor of a DRAM memory.

Allowable Subject Matter

2. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

3. Applicant's arguments filed 11/03/2003 have been fully considered but they are not persuasive.

It is argued, at page 8 of the remarks, that "[Figures 11, 12, and 17 of Yates et al. 6,358,793 are inadequate to show the "substantially planar surface" of claims 15-20, because] M.P.E.P. § 2125 indicates, as an example, that the relative dimensions of features of an object illustrated in drawings would not be reasonably disclosed or suggested to one of ordinary skill in the art unless the reference also discloses that the drawings are to scale." (emphasis added) However, "substantially planar surface," the limitation which the drawings disclose, does not require disclosure of "relative dimensions" as the term "relative dimensions" ("comparison of the relative dimensions of ap-

Art Unit: 2826

pellant's and Bauer 's drawing figures [does not support the conclusion] that Bauer clearly points to the use of a chime length of roughly 1/2 to 1 inch for a whiskey barrel. [because] Bauer does not disclose that his drawings are to scale" [internal quotation marks removed]) is used in M.P.E.P. § 2125. Rather, "substantially planar surface," merely requires that the surface be fairly flat in comparison to the other features claimed by applicant and disclosed by Yates et al. To meet the claim, Yates et al.'s surfaces, as shown in figures 11,12, and 17, need not be "substantially planar" in comparison to applicant's drawing figures, nor to any figures external to Yates' own. One of ordinary skill in the art would understand that Yates' figures disclose substantially planar surfaces by comparing those surfaces to other features in Yates' figures. Because comparison to external objects is unnecessary, Yates need not supply a scale for his drawings.

With particular respect to claim 20 it is argued, at page 9 of the remarks, that "Claim 20 is further allowable since Yates neither expressly nor inherently describes a material layer (i.e., either the photoresist layer or the resulting mask layer thereon that has a thickness which is less than the depths of the containers thereof. The relative dimensions shown in the drawings of Yates cannot be relied upon since Yates does 'not disclose that the drawings are to scale and is silent as to dimensions.' MPEP § 2125." However, in this instance it is absolutely clear that all one of ordinary skill in the art need understand is that one feature shown in Yates' drawings (thickness of the material layer) is smaller than another feature (depths of the containers) shown in the same

Art Unit: 2826

drawings. In comparing one feature in a drawing to another feature in the same drawing, the scale of the drawing is immaterial.

It is further argued, at page 9 of the remarks, that “reliance [on the drawings of Kikuchi 6,278,153 to show that the surface of resist layer 20 is substantially planer] is improper, since the specification does not indicate that the features (e.g. straight lines) of the simplified drawings are to be taken at face value.” However, the specification of Kikuchi does in fact indicate, by omission, that the drawings are to be taken at face value. If Kikuchi had not intended his drawings to be taken at face value he would have said “These drawings should not be taken at face value,” or word to that effect.

It is argued, at page 9 of the remarks, that “Each of claims 16-20 is allowable, among other reasons, for depending either directly or indirectly from claim 15...” However, applicant does not state the “other reasons” to which he refers with respect to claims 16-19. Because applicant stands mute on the “other reasons” applicant is understood to mean that claims 16-19 are allowable if claim 15 is allowable. Claim 15 is not allowable.

It is argued, at page 10 of the remarks, that “Each of claims 3 and 11-13 is allowable, among other reasons, for depending either directly or indirectly from claim 1...” However, applicant does not state the “other reasons” to which he refers. Because applicant stands mute on the “other reasons” applicant is understood to mean that claims 3 and 11-13 are allowable if claim 1 is allowable. Claim 1 is not allowable.

Art Unit: 2826

It is further argued, at page 10 of the remarks, that "Claims 4 is allowable, among other reasons, for depending from claims 1 and 3..." However, applicant does not state the "other reasons" to which he refers. Because applicant stands mute on the "other reasons" applicant is understood to mean that claim 4 is allowable if claims 1 and 3 are allowable. Claims 1 and 3 are not allowable.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas L Dickey whose telephone number is 703-308-

Art Unit: 2826

0980. After February 4, 2004, this telephone number will change to (571) 272-1913. The examiner can normally be reached on Monday through Thursday 8 AM to 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.

tld
12/2003


Minhloan Tran
Primary Examiner
Art Unit 2826